

STRENGTH AND HIGH CONDUCTIVITY COPPER ALLOY FOR DUCTOR DEVICE LEAD MATERIAL OR CONDUCTIVE SPRING

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Inventor(s): SO HIDEHIKO; others: 01
Applicant(s):: NIPPON MINING CO LTD
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Abstract

PURPOSE: To improve bendability, solderability, plating suitability, and etching characteristic by limiting S content among the impurities of a Cu-Ni-Si alloy with a specific composition to a specific value or below.
CONSTITUTION: This titled copper alloy has a composition which consists of, by weight, 0.4-4.0% Ni, 0.1-1.0% Si, and the balance Cu with inevitable impurities and in which S content among the above impurities is regulated to $\leq 0.0015\%$. Further, as auxiliaries, 0.001-3.0% of one or more elements among Zn, P, Sn, As, Cr, Mg, Mn, Sb, Fe, Co, Al, Ti, Zr, Be, Ag, Pb, B, and lanthanide elements and/or $\leq 0.0020\%$ O may be incorporated in the above copper alloy. In this copper alloy, S is extremely easy to combine with Si and, when its content exceeds the upper limit, a large number of sulfides are formed and, moreover, O also combines with Si and, when its content exceeds the upper limit, a large number of inclusions are formed, so that bendability, solderability, plating suitability, and etching characteristic are remarkably deteriorated in both the above cases.

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